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EDUCATION

1994, Ph.D. , Atmospheric and Oceanic Sciences, University of Wisconsin-Madison
1985, 1982, M.S. & B.S , Atmospheric Sciences, National Taiwan University, Taiwan

SCIENTIFIC EXPERTISE

Dr. Jui-Lin (Frank) Li has extensive experiences in global/regional coupled climate modeling and model physical parameterizations with emphasis on boundary layer, clouds, convection and radiation as well as utilizing new and emerging satellite data sets to study weather and climate to advance our model simulation and future climate projection.

PROFESSIONAL EXPERIENCES

2006-present Scientist, JPL/Caltech

2010-present Visiting Associate Researcher/JIFRESSE at UCLA

2004-2006: Senior Scientific programmer, JPL/NASA (Duane Waliser)

2000-2004: Senior Scientific programmer, DAO/GMAO/GSFC/NASA (Supervisor: A. Hou)

1994-2000: PostDoc at UCLA (Supervisor: A. Arakawa)

AWARDS AND HONORS

2012: IPCC Team Award; 2009: JPL Mariner Award; (outstanding scientist in the year; Earth Science Division)
2009: “cutting edge research” JPL Global Climate Change. 2008: JPL Lump sum Award, 2008;
2007: Top-ten list of NASA Aura MLS Mission Research Awards; 2006: JPL group award

LIST OF PUBLICATIONS

2015:

1. Li, J.-L. F., W.-L. Lee, Tong Lee, Eric Fetzer, Jia-Yuh Yu, (2015), The Impacts of Cloud Snow Radiative Effects on Pacific Oceans Surface Heat Fluxes, Surface Wind Stress, and Ocean Temperatures in Coupled GCM Simulations, *J. Geophys. Res. Atmos.*, Feb. 2014,
DOI: 10.1002/2014JD022538.
2. G. Cesana, D. E. Waliser, X. Jiang, J.-L. F. Li, (2015), Multi-model evaluation of cloud phase transition using satellite and reanalysis data, *JGR*, under review.
3. Shaoyue Qiu, Xiquan Dong, Baike Xi, J.-L. F. Li, (2015), Characterizing Arctic mixed-phase cloud structure and its relationship with humidity and temperature inversion using ARM NSA Observations, *JGR*, accepted.
4. Bo-Wen Shen, Samson Cheung, J.-L. F. Li, Yu-ling Wu, (2015), Multiscale Processes of Hurricane Sandy (2012) as Revealed by the Parallel Ensemble Empirical Model Decomposition and Advanced Visualization Technology, *Journal of Marine Science and Engineering*, under review.
5. Li, J.-J. F., Duane Waliser, Wei-Liang Lee, Tong Lee, Jia-Yuh Yu, Yi-Chun Chen, Eric Fetzer, (2015), An Observationally-Based Evaluation of Ocean Surface Evaporation, Precipitation, and Ocean Salinity in Coupled GCM Simulations, *JGR*, ready to be submitted.
6. Li, J.-L. F., Wei-Liang Lee, Duane Waliser, Jia-Yuh Yu, Xianan Jiang, Tristan L'Ecuyer, Terry Kubar, Eric Fetzer, (2015), The Impacts of Cloud Snow Radiative Effects on Pacific Radiative Heating Profile in Contemporary GCMs using A-Train observations, *JGR*, ready to be submitted.

2014:

7. Zhang, Chengzhu, Minghuai Wang, Hugh Morrison, Richard C. J. Somerville, Kai Zhang, Xiaohong Liu, **J.-L. F. Li**, (2014), Investigating Ice Nucleation in Cirrus Clouds with an Aerosol-enabled Multi-scale Modeling Framework *JAMES*, **DOI: 10.1002/2014MS000343**.
8. **Li, J.-L. F.**, W.-L. Lee, D. E. Waliser, Justin P. Stachnik, Eric Fetzer, Sun Won, Qing Yue, (2014), Characterizing Tropical Pacific Water Vapor and Radiative Biases in CMIP5 GCMs: Observationally-Based Analyses and A Snow and Radiation Interaction Sensitivity Experiment, *J. Geophys. Res. Atmos.*, **DOI: 10.1002/2014JD021924**.
9. **Li, J.-L. F.**, R. M. Forbes, D. E. Waliser, G. Stephens, S. W. Lee, (2014), Characterizing impacts of precipitating snow hydrometeors in the radiation using the ECMWF IFS global model, *J. Geophys. Res. Atmos.*, 119, **doi:10.1002/2014JD021450**.
10. Stephens G., D. Obrien, P. J. Webster, P. Pilewski, S. Kato, **J-L F. Li**, 2014, The Albedo of Earth, *Reviews of Geophysics*, **under review**.
11. **Li, J.-L. F.**, D. E. Waliser, G. Stephens, S. W. Lee, 2014, Characterizing and understanding cloud ice and radiation budgets in global climate models and reanalysis, *AMS monograph* Attribute to Late Professor Michio Yanai, **accepted**.
12. **Li, J.-L. F.**, W.-L. Lee, D. E. Waliser, J. David Neelin, Justin P. Stachnik, Tong Lee, 2014, Cloud-Precipitation-Radiation-Dynamics Interaction in Global Climate Models: A Snow and Radiation Interaction Sensitivity Experiment, *J. Geophys. Res. Atmos.*, **DOI: 10.1002/2013JD021038**.

2013:

13. **Li, J.-L. F.**, D. E. Waliser, G. Stephens, S. Lee, T. L'Ecuyer, S. Kato, N. Loeb, and H.-Y. Ma (2013), Characterizing and understanding radiation budget biases in CMIP3/CMIP5 GCMs, contemporary GCM, and reanalysis, *J. Geophys. Res. Atmos.*, 118, **doi:10.1002/jgrd.50378**.
14. Shen, Bo-Wen, Samson Chueng, **J-L F. Li**, 2013, Analyzing Tropical Waves using the Parallel Ensemble Empirical Model Decomposition (PEEMD) Method: Preliminary Results with Hurricane Sandy (2012), *ESTO Showcase 2013*.
15. Shen, B.-W., M. DeMaria, **J.-L. F. Li**, and S. Cheung (2013), Genesis of Hurricane Sandy (2012) simulated with a global mesoscale model, *Geophys. Res. Lett.*, 40, 4944–4950, **doi:10.1002/grl.50934**.

2012:

16. Ao, C. O., D. E. Waliser, S. K. Chan, **J.-L. F. Li**, B. Tian, F. Xie, and A. J. Mannucci (2012), Planetary boundary layer heights from GPS radio occultation refractivity and humidity profiles, *J. Geophys. Res.*, 117, D16117, **doi:10.1029/2012JD017598**.
17. Duane E. Waliser, Bin Guan, **Jui-Lin F. Li**, Jinwon Kim, (2012), Addendum to “Simulating cold season snowpack: Impacts of snow albedo and multi-layer snow physics”: Waliser, D., J. Kim, Y. Xue, Y. Chao, A. Eldering, R. Fovell, A. Hall, Q. Li, K. N. Liou, J. McWilliams, S. Kapnick, R. Vasic, F. De Sale, and Y. Yu (2011), Climatic Change, 109 (Suppl 1):S95–S117, **DOI 10.1007/s10584-011-0312-5**.
18. Guan, B., D. E. Waliser, J.-L. F. Li, and A. da Silva (2012), Evaluating the impact of orbital sampling on satellite-climate model comparisons, *J. Geophys. Res.*, **doi:10.1029/2012JD018590**.
19. Kubar, Terence L., Duane E. Waliser, J.-L. Li, Xianan Jiang, 2012: On the Annual Cycle, Variability, and Correlations of Oceanic Low-Topped Clouds with Large-Scale Circulation Using Aqua MODIS and ERA-Interim. *J. Climate*, 25, 6152–6174. **doi: http://dx.doi.org/10.1175/JCLI-D-11-00478.1**
20. **Li, J.-L. F.**, D. E. Waliser, W.-T. Chen, B. Guan, T. Kubar, G. Stephens, H-Y Ma, D. Ming, L. Donner, C. Seman, and L. Horowitz, (2012), An observationally based evaluation of cloud ice water in CMIP3 and CMIP5 GCMs and contemporary reanalyses using contemporary satellite data, *J. Geophys. Res.*, **doi:10.1029/2012JD017640**.
21. Ma, H.-Y., M. Köhler, **J.-L. F. Li**, et al., (2012), Evaluation of an ice cloud parameterization based on a dynamical-microphysical lifetime concept using CloudSat observations and the ERA-Interim reanalysis, *J. Geophys. Res.*, 117, D05210, **doi:10.1029/2011JD016275**.

22. Duane E. Waliser, Bin Guan, **Jui-Lin Li**, Jinwon Kim, (2012), Addendum to “Simulating cold season snowpack: Impacts of snow albedo and multi-layer snow physics”: Waliser, D., J. Kim, Y. Xue, Y. Chao, A. Eldering, R. Fovell, A. Hall, Q. Li, K. Liou, J. McWilliams, S. Kapnick, R. Vasic, F. D. Sale, and Y. Yu (2011), Climatic Change, 109 (Suppl 1):S95–S117, DOI [10.1007/s10584-011-0312-5](https://doi.org/10.1007/s10584-011-0312-5).
23. Song, Xiaoliang, Guang J. Zhang, **J.-L. F. Li**, 2012: Evaluation of Microphysics Parameterization for Convective Clouds in the NCAR Community Atmosphere Model CAM5. *J. Climate*, **25**, 8568–8590. doi: <http://dx.doi.org/10.1175/JCLI-D-11-00563.1>
24. Stephens G., **J-L F. Li**, et al: An update on Earth’s energy balance in light of the latest global observations, *Nature*, DOI:[10.1038](#).
25. Le, Tong , **Duane E. Waliser**, **J.-L. F. Li**, and Michelle M. Gierach, (2012), Evaluation of CMIP3 and CMIP5 Wind Stress Climatology Using Satellite Measurements and Atmospheric Reanalysis Products, *Journal of Climate*, *J. Climate*, **26**, 5810–5826. doi: <http://dx.doi.org/10.1175/JCLI-D-12-00591.1>.
26. Xian-Nan Jiang, Eric D. Maloney, **J.-L. F. Li**, and Duane E. Waliser, (2012), Simulations of the Eastern North Pacific Intraseasonal Variability in CMIP5 GCMs, Accepted, *Journal Climate*. , **26**, 3489–3510. doi: <http://dx.doi.org/10.1175/JCLI-D-12-00526.1>

2011:

27. Chen, W.-T. Chen, C. P. Woods, **J.-L. F. Li**, D. E. Waliser, et al., 2011, Partitioning CloudSat Ice Water Content for Comparison with Upper-Tropospheric Ice in Global Atmospheric Models, *J. Geophys. Res.*, doi:[10.1029/2010JD015179](#).
28. Kubar, Terence L., Duane E. Waliser, **J.-L. F. Li**, 2011: Boundary Layer and Cloud Structure Controls on Tropical Low Cloud Cover Using A-Train Satellite Data and ECMWF Analyses, *J. Climate*, 24, 194–215. doi: [10.1175/2010JCLI3702.1](#).
29. **Li, J.-L. F.**, D. E. Waliser, and J. H. Jiang (2011), Correction to “Comparisons of satellites liquid water estimates to ECMWF and GMAO analyses, 20th century IPCC AR4 climate simulations, and GCM simulations”, *Geophys. Res. Lett.*, 38, L24807, doi: [10.1029/2011GL049956](#).
30. Teixeira, J, et al., and **J-L F. Li**, 2011:Tropical and sub-tropical cloud transitions in weather and climate prediction models: the GCSS/WGNE Pacific Cross-section Intercomparison (GPCI), *J. Geophys. Res.*, doi: [10.1175/2011JCLI3672.1](#).
31. Waliser, D. E., **J.-L. F. Li**, T. S. L’Ecuyer, and W.-T. Chen, 2011: The impact of precipitating ice and snow on the radiation balance in global climate models, *Geophys. Res. Lett.*, 38, L06802, doi:[10.1029/2010GL046478](#).
32. Wang, C. C., H. L. Huang, **J.-L. F. Li**, T. M. Leou, and G. T. J. Chen, 2011: An evaluation of the performance of the CWB NFS model for warm-season rainfall distribution and propagation over the East Asian continent, *Terr. Atmos. Ocean. Sci.*, 22, 49-69, doi: [10.3319/TAO.2010.07.13.01\(A\)](#)

2010:

33. Gettelman, A., X. Liu, S. J. Ghan, H. Morrison, S. Park, A. J. Conley, S. A. Klein, J. Boyle, D. L. Mitchell, and **J.-L. F. Li**, 2010: Global simulations of ice nucleation and ice supersaturation with an improved cloud scheme in the Community Atmosphere Model, *J. Geophys. Res.*, 115, D18216, doi:[10.1029/2009JD013797](#).
34. Jiang, X., D. E. Waliser, **J.-L. F. Li**, and C. P. Woods, 2010: Vertical Cloud Water Structures of the Boreal Summer Intraseasonal Variability Based on CloudSat Observations, *Climate Dynamics*, DOI [10.1007/s00382-010-0853-8](#).
35. H.-Y. Ma, C. R. Mechoso, Y. Xue, H. Xiao, C.-M. Wu, **J.-L. F. Li**, De Sales, 2010: Impact of land surface processes on the South American warm season climate, *J. Climate*, doi:[10.1007/s00382-010-0813-3](#).

2009:

- 36.** Jiang, X., D.E. Waliser, **J.-L. F. Li**, et al., 2009: Vertical Heating Structures Associated with the MJO as Characterized by TRMM Estimates, ECMWF Reanalyses and Forecasts: A Case Study during 1998-99 Winter, *J. Climate*, 22, 6001-6022, doi:[10.1175/2009JCLI3048.1](https://doi.org/10.1175/2009JCLI3048.1).
- 37.** Tao, W., J. Chern, Robert Atlas, David Randall, Marat Khairoutdinov, **J-L F. Li**, Duane E. Waliser, A. Hou, Xin Lin, Christa Peters-Lidard, William Lau, Jonathan Jiang, and J. Simpson, 2009: A Multiscale Modeling System: Developments, Applications, and Critical Issues, *Bull. Amer. Meteor. Soc.*, 90(4), 515–534.
- 38.** Waliser, D.E., and **J.-L. F. Li** et al., 2009: Cloud ice: A climate model challenge with signs and expectations of progress, *J. Geophys. Res.*, 114, D00A21, doi:[10.1029/2008JD010015](https://doi.org/10.1029/2008JD010015).
- 39.** Woods, C.P., D Waliser, **J-L F. Li**, et al., 2009: Evaluating CloudSat Ice Water Retrievals Using a Cloud Resolving Model: Sensitivities to Frozen Particle Properties and Implications for Model-Data Comparisons, *J. Geophys. Res.*, doi:[10.1029/2008JD009941](https://doi.org/10.1029/2008JD009941).
- 40.** Wu, D. L., and, **J.-L. F. Li**, and D. E. Waliser et al., 2009: Comparisons of Global Cloud Ice from MLS, CloudSat, and Correlative Data Sets, *J. Geophys. Res.*, doi:[10.1029/2008JD009946](https://doi.org/10.1029/2008JD009946).

2008:

- 41.** **Li, J-L F.** D. Waliser, et al., 2008, Troposphere Cloud Liquid Water: Satellite Measurements, ECMWF and GEOS5 Analyses, and GCM Simulations, VOL. 35, L19710, *GEOPHYSICAL RESEARCH LETTERS*, doi:[10.1029/2008GL035427](https://doi.org/10.1029/2008GL035427).
- 42.** Dong L. Wu, et al, **Jui-Lin Li**, 2008: Aura MLS Cloud Ice Measurements and Comparisons with CloudSat and Other Correlative Data, *JGR*, DOI: [10.1029/2008JD009946](https://doi.org/10.1029/2008JD009946).
- 43.** Schwartz, M.J., and, **J-L.F. Li**, et al., 2008, "Validation of the Aura Microwave Limb Sounder Temperature and Geopotential Height Measurements," *J. Geophys. Res.* 113, D15S11, doi:[10.1029/2007JD008783](https://doi.org/10.1029/2007JD008783), 2008.
- 44.** Schwartz, M. J., D. E. Waliser, B. Tian, **J. F. Li**, D. L. Wu, J. H. Jiang, and W. G. Read, 2008: MJO in EOS MLS cloud ice and water vapor. *Geophys. Res. Lett.*, in press.
- 45.** Woods, C.P., D Waliser, **J-L F. Li**, R Austin, G Stephens, D Vane, W Tao, A Tompkins, 2008, Evaluating CloudSat Ice Water Retrievals Using a Cloud Resolving Model: Sensitivities to Frozen Particle Properties and Implications for Model-Data Comparisons, 2008, *J. Geophys. Res.*, 113, D00A11, doi:[10.1029/2008JD009941](https://doi.org/10.1029/2008JD009941).

2007:

- 46.** **Li, J.-L.**, J.H. Jiang, D.E. Waliser, and A.M. Tompkins, 2007, Assessing Consistency between EOS MLS and ECMWF Analyzed and Forecast Estimates of Cloud Ice, *Geophys. Res. Lett.* 34, L08701, doi:[10.1029/2006GL029022](https://doi.org/10.1029/2006GL029022).

2006:

- 47.** Su, Hui, D. E. Waliser, J. H. Jiang, **J.-L. F. Li**, W. G. Read, J. W. Waters and A. M. Tompkins, 2006: Relationships among upper tropospheric water vapor, clouds and SST: ECMWF analyses and GCM simulations, *Geophys. Res. Lett.*, DOI: [10.1029/2006GL027582](https://doi.org/10.1029/2006GL027582).
- 48.** Xin Lin, **J.L. Li**, et al., 2006, A View of Hurricane Katrina with Early 21st Century Technology, EOS. DOI: [10.1029/2006EO410002](https://doi.org/10.1029/2006EO410002).
- 49.** Shen, B.-W., et. al., and **J.-L. F Li** , 2006, Hurricane forecasts with a global mesoscale-resolving model: Preliminary results with Hurricane Katrina (2005), *Geophys. Res. Lett.*, 33, L13813, doi:[10.1029/2006GL026143](https://doi.org/10.1029/2006GL026143).

2005:

- 50.** **Li Jui-Lin** and D. Waliser et al., 2005: Comparisons of EOS MLS Cloud Ice Measurements with ECMWF analyses and GCM Simulations: Initial Results, *Geophys. Res. Lett.*, 32, L18710,doi: [10.1029/2005GL023788](https://doi.org/10.1029/2005GL023788), 2005.

- 51.** Waliser, D. E., R. Murtugudde, P. Strutton, **J.-L. Li**, 2005, Subseasonal Organization of Ocean Chlorophyll: Prospects for Prediction Based on the Madden-Julian Oscillation, *Geoph. Res. Lett.*, 32, L23602, doi:[10.1029/2005GL024300](https://doi.org/10.1029/2005GL024300).

2002:

- 52.** Li, Jui-Lin F., Martin K., J. D. Farrara and R. Mechoso, 2002: The Impact of the Improvement of optical properties of stratocumulus clouds in the UCLA AGCM, *Mon. Wea. Rev.*, 130, 1433-1441.

- 53.** Wang, F.-J. and **J-L. F. Li**, 2002: Improved Shallow Cumulus Process In The Central Weather Bureau Global Forecast System, Meteorological Bulletin, Vol. 44 No.4, 1-23

1994:

- 54.** Li, Jui-Lin F., 1994: On Shallow Cumulus Parameterization Schemes for General Circulation Model Planetary Boundary Layers, **PhD thesis**, Department of Atmospheric and Oceanic Sciences, University of Wisconsin, Madison, Wisconsin.